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G08C 23/02

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GB 2220290 A GB 2141274 A GB 2128786 A
GB 2084772 A GB 2070829 A GB 2025669 A

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(54) **Electronic systems interfacing**

(57) An arrangement for use in the control of electronic systems and/or equipment by an operator enables the operator to use tactile touch and audio information to control or select facilities of the electronic systems and/or equipment under the control of the operator.

Four keys 3 - 6 control menu selection to cause equipment 7 to call for read out from store of a selected audio message.

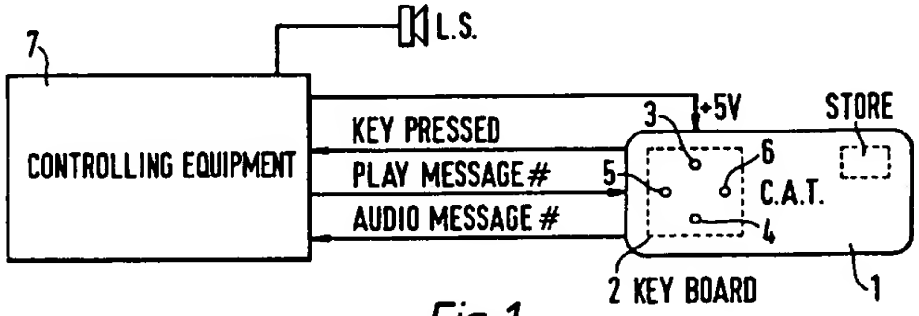

Fig. 1

GB 2 293 473 A

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

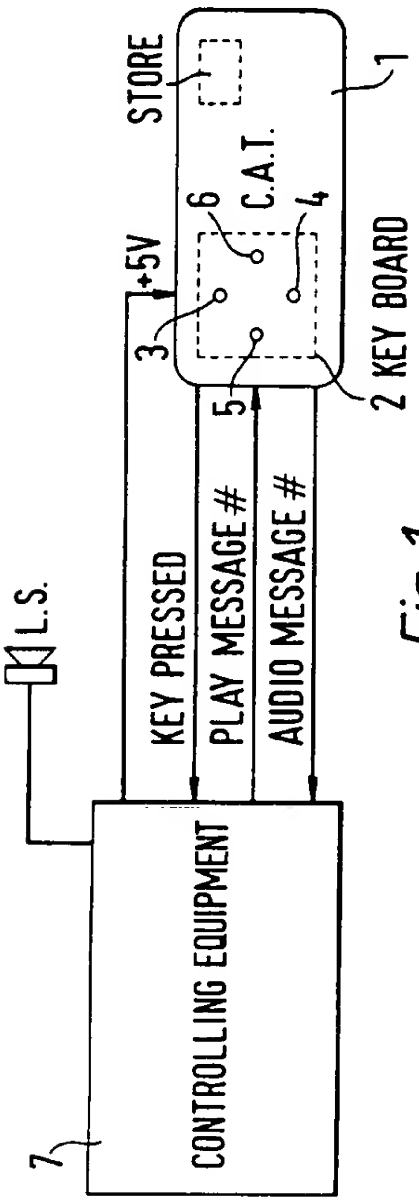
L.S.
CONTROLLING EQUIPMENT
7
KEY PRESSED
PLAY MESSAGE #
AUDIO MESSAGE #
5
3
+5V
6
4
C.A.T.
STORE
1
2 KEY BOARD

Fig. 1

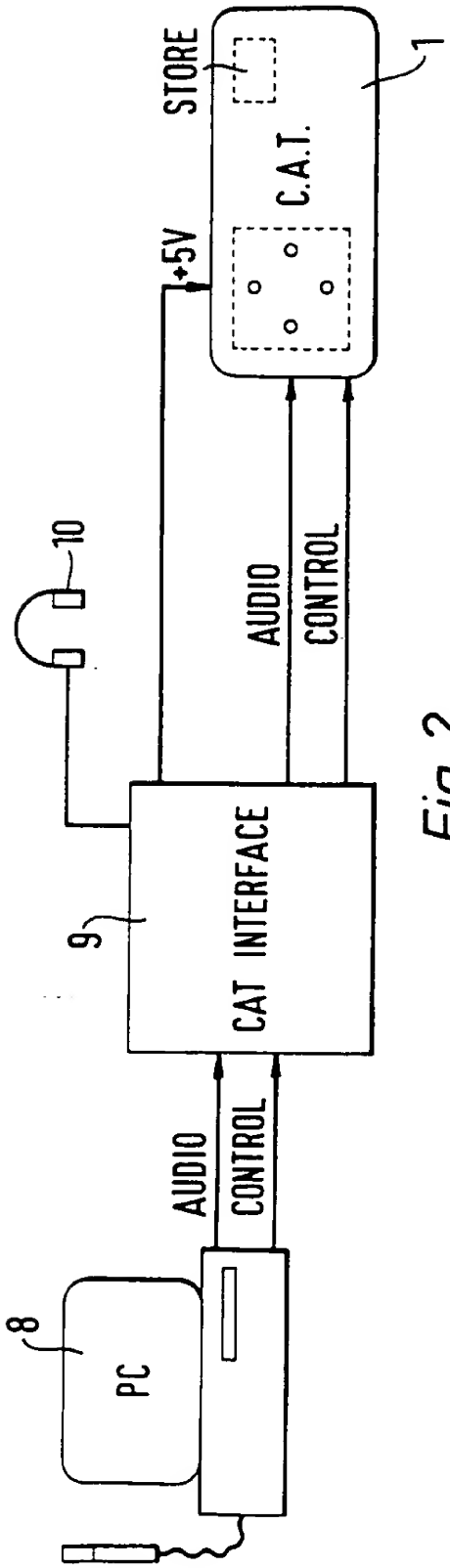
PC
8
AUDIO
CONTROL
CAT INTERFACE
9
10
AUDIO
CONTROL
+5V
STORE
C.A.T.
1

Fig. 2

2293473

ELECTRONIC SYSTEMS INTERFACING

This invention is concerned with electronic systems and equipment in general and more particularly, but not exclusively, to arrangements for facilitating the interfacing of an operator with an electronic system with which the operator is concerned.

It is a particular object of the invention to provide arrangements for facilitating the use of electronic equipment and/or systems in situations where it is not possible for the operator conveniently to look at a keyboard or input device and/or a screen or visual display unit.

It is well known that many operators of electronic equipment at times need to look at a keyboard in order to be sure that the correct key or keys is/are being selected whilst at the same time, in practice, having to look at the screen to make sure that the information appearing upon the screen is that required, or if it is necessary to make adjustments to what is being shown on the screen without loosing visual contact with the screen.

This type of problem has been found to be of great practical inconvenience leading to error in the operation of the equipment/systems.

It is an object of the present invention to provide an arrangement which at least reduces problems such as above mentioned.

Broadly, according a first aspect of the present invention there is provided an arrangement for use in the control of electronic systems and/or equipment whereby an operator is able to use tactile touch and audio information to control or select facilities of the electronic systems and/or equipment under the control of the operator.

For a better understanding of the invention and to show how to carry the same into effect reference will now be made to the accompanying drawing in which:-

Figure 1 is a block diagram illustrating the basic concepts of the invention; and

Figure 2 is a schematic block diagram illustrating an application of the concepts of the invention and in particular how required audio messages are recorded and how the desired audio waveforms are programmed into the arrangement.

Referring now to Figure 1, the arrangement shown therein includes a compact audio terminal 1 in accordance with the invention having a keyboard/pad 2 and storage facilities 1A for storing/containing/and replaying recorded audio messages in a form which facilitates the requesting of such audio messages by means of an essentially simple serial protocol.

In this specification the term compact audio terminal is considered to embrace a unit which incorporates an audio message storage capacity together with a keyboard/pad facility which enables interrogation of the content of the store.

The compact audio terminal 1 for the embodiment shown in

the Figure 1 thus incorporates a key pad 2 which includes four operator keys 3, 4, 5 and 6 by means of which an operator can select or indicate/initiate/transfer a recorded message selection to the electronic system and/or equipment.

The operator keys are arranged to serve as upper and lower keys 3 and 4 and left hand and right hand keys 5 and 6.

To understand the function of the keys 3 to 6 it is convenient to presume that the stored recorded audio messages stored in the compact audio terminal 1 are known to the electronic system/equipment. The commands to the electronic system/equipment are arranged to be hierarchial and in such manner as to be addressable by a menu facility whose relationship to the keyboard/pad 2 is such that the method of selection within the menu system is such that on depressing the lower key 4 the operator goes deeper (lower) into the menu and by depressing the upper key 3 the operator goes higher up in the menu. Depression of the left hand and right hand keys 5 and 6 enables selection within a number of stored further message options at the menu level selected by operation of the keys 3 and 4.

Simultaneous depression of two keys is arranged to enable message and functional possibilities from the menu such as for example, reset, volume control etc.

The compact audio terminal 1 is operationally connected with equipment 7 for controlling the operation of the terminal 1.

The inter-relationships between the controlling equipment 7 and the compact audio terminal 1 are such that depression of a selected key 3,4,5 or 6 or combinations

thereof causes an appropriate message associated with the key or keys depressed to be passed to the controlling equipment 7 which latter so responds to the signal(s) associated with the key depression(s) as to transmit to the keyboard/pad a request for a particular stored message or message sequence to be transferred from the campact audio terminal 1 to the equipment 7. Such particular message is transferred from the keyboard/pad arrrangement in the form of an audio message to be mixed and/or amplified and broadcast, by way of the controlling equipment 7 and a loudspeaker LS or other audio device.

The four keys 3,4,5 and 6 of the compact audio terminal 1 are so arranged that they can be easily located by feel so that an operator does not need to look at the keyboard/pad 2 when scanning/working through menu items.

With the system of the invention any request for individual messages is effected by use of a message number rather than by the conventionally used arrangements for defining start and stop memory locations for a particular message. In practice, this provides a significant advantage when altering or converting the stored messages involved in the menu to a different language, or other form when executing any other mode of variation of a message content.

In addition, it will be noted that the system is essentially independent of message length, the latter invariably being a problem with arrangements involving meassage length stop and start locations, since the underlying requirements of the proposals of the invention are that the messages whatever their individual lengths have to be stored in in the correct menu order and that the total message run time is not greater that the capacity of the compact audio terminal 1.

The Figure 1 illustrates by the arrow headed lines the message/control information links between the controlling equipment 7 and the compact audio terminal 1. The links shown include key pressed; play message, and audio message.

Referring now to Figure 2, the apparatus shown therein involves a personel computer 8 equipped with a so called sound blaster pro sound card. A compact audio terminal interface 9 is provided between the personel computer 8 and the compact audio terminal 1 to enable audio messages to be recorded reviewed and/or edited. By using the software associated with the interface 9 individual messages can be recorded and their order selectively arranged before the compact audio terminal 1 is itself programmed to provide the store of recorded messages.

The stored messages can be reviewed by playing them from the interface. Headphones 10 enable the messages to be heard during the programming.

The programming arrangement is shown in Figure 2 by the arrow headed lines indicating the message/control information links between the personal computer 8, the compact audio interface 9 and the compact audio terminal 1. The links shown indicate the audio and control links.

CLAIMS

1. An arrangement for use in the control of electronic systems and/or equipment whereby an operator is able to use tactile touch and audio information to control or select facilities of the electronic systems and/or equipment under the control of the operator.

2. An arrangement as claimed in claim 1, and including a compact audio terminal having a keyboard/pad and storage facilities for storing/containing/and/or replaying recorded audio messages in a form which facilitates the requesting of such audio messages by means of an essentially simple serial protocol.

3. An arrangement as claimed in claim 2, and wherein commands to the electronic system/equipment are arranged to be hierarchial and in such manner as to be addressable by a menu facility whose relationship to the keyboard/pad is such that the method of selection within the menu system controlled by key selection.

4. An arrangement as claimed in claim 3, and wherein the four keys of the keyboard/pad are so arranged that they can be easily located by feel so that an operator does not need to look at the keyboard/pad when scanning/working through menu items.

5. An arrangement as claimed in claim 1,2,3 or 4, and wherein any request for individual messages from said menu is effectable by use of a message number rather than by the using start and stop memory locations for a particular message.

6. An arrangement as claimed in claim 3, 4 or 5, and wherein the keyboard/pad includes four keys identified as higher, lower, left and right, the inter-relationship of the keys to the menu being such that on depressing the lower key the operator goes lower (deeper) into the menu, on depressing the upper key the operator goes higher up in the menu and by depression of the left hand and right hand keys enables operator selection within a number of stored further message options at the menu level selected by operation of the lower and upper keys.

7. An arrangement as claimed in claim 6, and wherein simultaneous depression of any two keys is arranged to enable other message and functional possibilities from the menu.

8. An arrangement as claimed in claim 7, and in which such combination possibilities include factors such as reset and volume control.

9. An arrangement as claimed in claim 6, 7 or 8, and wherein the inter-relationships between the control equipment and the compact audio terminal are such that depression of a selected key or combinations thereof causes an appropriate message associated with the key or keys depressed to be passed to the controlling equipment which latter so responds to the signal(s) associated with the key depression(s) as to transmit to the keyboard/pad a request for a particular stored message or message sequence to be transferred from the campact audio terminal to the equipment, and wherein such particular message is transferable from the keyboard/pad arrangement in the form of an audio message to be mixed and/or amplified and broadcast.

10 An arrangement for use in the control of electronic systems and/or equipment as claimed in any one of the preceding claims and including a personal computer, wherein a compact audio terminal interface is provided between the personel computer and the compact audio terminal to enable audio messages to be recorded reviewed and/or edited, and wherein by using the software associated with the interface individual messages can be recorded and their order selectively arranged before the compact audio terminal is itself programmed to provide the store of recorded messages.

11. An arrangement for use in the control of electronic systems and/or equipment by an operator, constructed and arranged to operate substantially as hereinbefore described with reference to the Figures of the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under Section 17
(The Search report)

Application number
GB 9514589.2

Relevant Technical Fields

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(ii) Int Cl (Ed.6) G08C 23/02

Search Examiner
M J DAVIS

Date of completion of Search
5 SEPTEMBER 1995

Databases (see below)
(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii)

Documents considered relevant following a search in respect of Claims :-
1 TO 11

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages		Relevant to claim(s)
X	GB 2220290 A	(HARVEY)	1 at least
X	GB 2141274 A	(PATHWAY)	1 at least
X	GB 2128786 A	(POSSUM)	1 at least
X	GB 2084772 A	(ETTER)	1 at least
X	GB 2070829 A	(ETTER)	1 at least
X	GB 2025669 A	(SONY)	1 at least

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